COMMONWEALTH of VIRGINIA

Department of Health

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RISKS OF RECREATIONAL WATER USE

Citizens who use river, stream and lake water for recreational purposes are urged to be cautious and to use common sense about contact with such water. Although the cleanliness and quality of Virginia's surface waters continually improves, officials from the Departments of Environmental Quality and Health caution that it is impossible to guarantee that any natural body of water is free of risk from disease causing-organisms or injury.

All rivers, streams and lakes contain naturally occurring algae, bacteria, viruses and parasites. Microbiological organisms come from plants, animals and sometimes human sewage. The concentrations of such organisms may be increased by agricultural, industrial and residential activities. Agricultural and urban runoff coupled with improperly or partially treated sewage can be major contributors to microbiological pollution. The types and numbers of such organisms are dependent on what runs into or is dumped in the water. The water flow, temperature, level of acidity, chemical composition, amount of organic material and other factors can also influence how many and what kinds of organisms are present.

Most of the organisms in Virginia's rivers and lakes probably do not cause human illness or are in such low levels they will not make anyone sick, but there is no way to be sure. Because natural bodies of water are so changeable, especially rivers, officials can only make general statements about the health risk of certain bodies of water; they cannot say exactly what the condition of a specific body of water is at any particular time. Increased pollution may occur after rain washes contaminants from land surfaces. Water that does not flow freely may concentrate pollutants that are already present.

Tests on water for viruses, parasites, and bacteria that cause illness are difficult, time consuming and costly. For these reasons, a national standard test for fecal coliform bacteria is used as an indicator of possible contamination from human waste. However, non-disease causing fecal coliform bacteria can also come from animals or multiply readily in certain types of water so high levels of them do not necessarily mean the water is unsafe. Samples from bodies of water that exceed the standard (an average of 200 fecal coliforms per 100ml from 2 or more samples taken in a 30-day period or 1000 fecal coliforms per 100 ml for a single sample) only indicate the potential for human sewage to be present. However, the higher the fecal coliform level, the more likely it is that sewage is present and the greater the risk of disease causing organisms being present. On the other hand, water that tests negative for fecal coliform bacteria is not necessarily risk free.

Rivers that run through or by the cities of Lynchburg and Richmond may receive an additional pollution load during heavy rains. These cities have combined sewers which collect both storm water runoff and human waste. To prevent flooding of the sewage treatment works during heavy rainfall events, the combined sewers are provided with overflow devices (Combined Sewer Overflow or CSO) which allow the combination of storm water and sewage to overflow into the river. For several days after a heavy rainfall, rivers and their tributaries in these cities may carry untreated sewage and pose a greater risk for causing illness. Much has already been done to correct this situation and work is continuing to decrease the impact of CSOs even more.

Most of the water-borne organisms that cause disease affect the digestive tract and therefore are acquired by ingesting contaminated water. Less commonly, skin, ear and eye infections can result from contact with surface water. Although recreational water users may inadvertently swallow water, deliberately drinking from rivers, streams or lakes is never recommended. Persons whose immune systems are compromised should be very careful to avoid swallowing water from any river, stream or lake.

Although there are a number of diseases that can potentially come from recreational water, reported outbreaks of such diseases have been rare in Virginia. In 1979, 8 children who drank water from a creek became ill and 72 persons who used a community swimming pool had a suspected viral infection. In 1992, an outbreak of shigellosis (a bacterial illness that causes diarrhea) was associated with people swimming in the shallow area of a lake.

In addition to risks from infectious organisms, some waters may be contaminated with toxic substances. They create more of a risk for persons eating fish from those waters than for swimmers. Health advisories which are issued when these waters are identified, may limit or prohibit consumption of fish. The public is notified via warning signs and through the brochure on fishing regulations provided by the Department of Game and Inland Fisheries.

The following suggestions will help citizens protect themselves from recreational water hazards:

Look for posted signs and follow the advice on them.
Do not swim in water that looks stagnant, muddy, or smells unpleasant.
Try to avoid swallowing river, stream or lake water, especially if you are immunocompromised.
Avoid swimming several days after a heavy rainfall.
Prevent broken skin from directly contacting recreational water.
Do not drink alcoholic beverages or use drugs when swimming or boating.
Avoid areas where you may become trapped in rocks or debris by fast flowing water.
Avoid flood waters that can carry hidden debris and cause injury.
Do not add to the risk; use appropriate toilet facilities.

For additional information, contact your local health department or the regional Department of Environmental Quality office serving your area.